{EPITECH}

DEVOPS SEMINAR_

< GATEWAY, DNS, DHCP NOTIONS />

DEVOPS SEMINAR

ex00 - Client machine

Install a Debian 13 virtual machine which has a graphical interface of your choice (KDE etc ...).
After installation, this machine has one network interface and is in a private network.

This `vm-client` will be used to test the configuration on the gateway, DHCP and DNS.

ex01 - Gateway machine

Create a new Debian 13 machine which does not have a graphical interface.

🔊 You can't keep yesterday's machine.

⚠️ It is on this machine that everything will be done with the autograder

Create two network interfaces.

- ✓ First interface must be in *bridge* or *nat* mode
- ✓ Second interface must be in a private network, the same as `vm-client`.

🔊 download the autograder AMD64 or download the autograder ARM64 on the gateway VM and use it from there.

{EPITECH}

ex02 - Network name

Change the name to `vm-gateway` for your gateway.

ex03 - Packages

Install the following packages on `vm-gateway`:

- ✓ tcpdump
- ✓ kea-dhcp4-server
- ✓ bind9
- ✓ nmap
- ✓ netstat

> if it's a binary, you need to find the package that contains it

ex04 - DHCP

Use `kea-dhcp4-server` on `vm-gateway` and configure it with the following features:

- ✓ network: `192.168.42.0/24` ;
- ✓ netmask: `255.255.255.0` ;
- ✓ IP for the private interface: `192.168.42.254` (not on DHCP mode) ;
- ✓ range DHCP: `192.168.42.100-192.168.42.150` (50 hosts).

Test it with `vm-client`. It must get an IP that is in this range.

> ⚠ Docker is forbidden.

{ EPITECH }

ex05 - Router

On `vm-gateway`, configure the gateway with *nftables*:

- ✓ Bridge interface must be set on *DHCP mode* ;
- ✓ Private network interface must be on the same network as `vm-client` ;
- ✓ write nftables rules in the file `/etc/nftables.conf` ;
- ✓ Allow all output traffic from the private network.

Make sure your `vm-client` can get internet via your gateway.

ex06 - DNS

Use **bind9** and create a DNS configuration with the following features:

- ✓ A domain `epi42.lan` (both machine must be in that domain) ;
- ✓ The following DNS record:
    - – `gateway.epi42.lan` => `192.168.42.254` ;
    - – `dhcp.epi42.lan` alias to `gateway.epi42.lan`.

⚠ Docker is forbidden.

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